THE CAUSALITY RELATIONSHIP BETWEEN FDI AND ECONOMIC GROWTH IN NORTH AFRICAN COUNTRIES

By Dr. Eman Selim,
Professor of Economics- Tanta University- Egypt

Abstract:. The purpose of the paper is to investigate the causal linkage between FDI and economic growth in North African countries. The paper uses bivariate vector autoregression and vector error correction models with annual time series data on FDI inflows, and GDP for six North African countries over the period 1970-2007. The results indicate the existence of long run causal bidirectional relationship between FDI inflows and real GDP growth rate for all North African countries except for Algeria. The paper shows that FDI inflows lead GDP growth rate and that economic growth leads FDI inflows in the long- run for all North African countries..As for the short –run causal relationship between FDI and real GDP growth rate, the empirical results show that GDP growth rate leads FDI inflows to Egypt, Libya, Morocco, Sudan and Tunisia by one year. FDI/GDP ratio positively leads GDP growth rate by one year in Egypt. However, the coefficient of the lagged FDI/GDP is negative and significant in the equation testing the causality from FDI to GDP in the case of Libya and Morocco suggesting that FDI causes the decline of GDP in the short run for these two countries. There is no causal short run relationship from FDI to GDP for Sudan and Tunisia. The Granger causality test results show that the causality runs from FDI to GDP in the case of Egypt, Libya and Sudan. However, there is neither, Granger causality running from GDP growth rate to FDI inflows nor Granger causality running from FDI to GDP growth rate for Algeria, morocco and Tunisia.
Key words: Foreign Direct Investment, Economic Growth, Vector Auto-regression, Error Correction Model
JEL Classification: C32, F21, O1

1. Introduction

Financial and physical assets are the key elements of economic development whatever their sources are. To bridge the gap between savings and investment and to have access to modern technology, developing countries rely on different types of

foreign capital flows. Private capital flows have witnessed dramatic increase in the first half of the 1990s after the sharp decline during the period 1983-1988. The increase in foreign capital flows to developing countries outweighs that of official foreign capital flows in the first half of the 1990s. However, most of the increase in foreign capital flows was concentrated to few developing countries in Asia and Latin America. Most of foreign capital flows to developing countries during the 1990s took the form of private portfolio capital flows. Foreign direct investment to developing countries increased in absolute terms but was also disproportionately distributed and concentrated to few developing countries.

The last decade has witnessed a change in the relative importance of FDI. Developing countries share of FDI substantially rose from 18 per cent to 36 per cent from 1990 to 2005. FDI flows have increased at unprecedented rate and have dominated other forms of foreign capital flows to developing countries in the last two decades, except with slight reduction during the recession of the 1990s. They are considered more stable than equity and short-term debt flows to developing countries. It is also believed that FDI flows to developing countries have positive impact on both domestic savings and investment and in turn on economic growth. However, most of the FDI flows to developing countries are concentrated in two emerging economies; China and India.

Despite the increase of the total FDI flows to North African countries, their share in the FDI inflows to developing countries is still very low. Debt flows and official financial flows are still the most important source of economic development finance in the North African countries.

In addition to the disproportionate share of the North African countries in world FDI inflows, a large proportion of FDI flows to North African countries are concentrated into natural resource using sectors such as mineral and oil production and in environment polluting intensive industries such as cement, Steel, Tanning and Phosphate and Nitrogen fertilizer industries. These pollution-intensive industries are recently relocated to countries with low regulatory standards and that operate to lower standards than in their home countries. The pollution cost will overweigh the positive impact of FDI if any and decline welfare levels in host countries. However, statistics on the sector distribution of FDI are unreliable and tend to underestimate the damaging impact of FDI on environment.

FDI can provide enormous benefits to North African countries. With the decline of flows of official development assistance (ODA) in the 1990s, North African countries among other developing countries consider FDI as a source of capital. Besides, FDI is a stable source of capital that contributes to gross fixed capital formation in North African countries. FDI can bring with it modern technology to North African countries and help to develop more mature financial sector. FDI have the advantage that it would not create obligations for the North African countries as the debt portfolio investments. Therefore, it is important to investigate the dynamic interactions in the short and the long run between FDI and economic performance in North African countries. We focus in this paper on the FDI-GDP growth rate nexus in the North African countries during 1970-2007.[1]

The purpose of the paper is to provide an empirical examination of the causal relationship between foreign direct investment inflows and economic growth of six North African countries namely, Egypt, Tunisia, Morocco, Libya and Sudan. Specifically the paper examines the dynamic long run and short run interactions and causality relationship between foreign direct investment inflows and economic growth. The paper examines the hypotheses that whether there is unidirectional relationship from FDI to economic growth /or a unidirectional relationship from economic growth to

FDI or/ a bidirectional relationship and whether the relationship is positive or negative. The paper also investigates whether FDI leads economic growth or economic growth leads FDI inflows.

The paper is divided into the following sections: section 2 presents the theoretical framework brief empirical literature review on the hypothesis of the bidirectional causal relationship between FDI and economic growth.. Data and methodology are described in section 3, and empirical results are presented in section 4 Section 5 provides the conclusion.

2. Literature Review

The relationship between economic growth and FDI inflows can have two directions from economic growth as a potential determinant of FDI and from FDI to economic growth.

First economic growth is considered as a determinant of FDI inflows to the host country. Lipsey (2000)[2], Dunning (1970 p.299)[3] and Lipsey (2000).

The neoclassical long run growth model /or the exogenous growth model /or the Solow- Sawn growth model (1956)[4], states that long run growth is exogenously determined by factors from outside the model. Vernon product cycle model (1966) emphasized that the foreign direct investment is an important stage of the product cycle for any good.[5] Romer (1986)[6], showed that investment decisions could have positive externalities through knowledge spillover. Grossman and Helpman (1991)[7] emphasized that knowledge spillovers can be a consequence to domestic investment as well as foreign direct investment undertaken by multinational corporations.

De Mello (1997)[8] provides an excellent survey of the empirical studies on the causal relationship between foreign direct investment and economic growth. De Mello (1999)[9] estimated the impact of FDI on capital accumulation and output and total factor productivity (TFP) growth in recipient economy. He used both time series and panel data for a sample of 32 countries some of them 15 are OECD countries and the others 17 are non-OECD developing countries. He used the data of gross national income and per capita GDP over the period 1970-90. He used time series and panel data estimations for the developed and the developing countries over the period 1970-90.. for the time series analysis, De Mello estimated bivariate VAR models for the countries for which the output, FDI and capital accumulation series were found to be stationary. The time series estimations show that the impact of FDI on growth or on capital accumulation and TFP growth is heterogeneous and varies across countries. He used panel data analysis to estimate dynamic panel models using the instrumental variables method. The panel data estimation shows that the positive impact of FDI on economic growth for developed and developing countries depends on the degree of complementarily and substitution between FDI and domestic investment.

Using annual data over the period 1987-1997 for 12 Asian developing countries, Wang (2001)[10] found that aggregated FDI flows to these countries have significant positive impact on economic growth. Liu, Burridge, and Sinclair (2002)[11] investigated the long run causal relationship between economic growth, FDI and trade for China. They used quarterly data of exports, import, FDI and GDP over the period 1981 -1997. They found that there is a bidirectional relationship between FDI and growth and a bidirectional relationship between FDI and exports. Kumar and Pradhan (2002)[12], used data of the growth rate of GDP, gross investment, FDI to GDP ratio, labor force from 98 developing countries. These developing countries represent Africa, Asia and Latin America over the period 1980-99. The tests of causality showed that in the majority of the cases, the direction of causation is not pronounced and in substantial number of the cases, the direction of causation actually runs from growth to FDI.

Alici and Ucal (2003)[13] used the VAR methodology to analyze the existence of a

causality relationship between three variables; exports, industrial production representing output and foreign direct investment of the Turkish economy over the period 1987.I-2002.IV. They found that the industrial production index and the export price index are causally related in the long- run and that the Granger causality is uni-direction running from exports price index to industrial production index. They did not find any positive causal relationship from FDI to output and no positive relationship from FDI to exports either. M.Dritsaki, C.Dritsaki and Adampoulos (2004)[14] used annual data of real GDP, FDI flows, and real revenues of exports over the period 1960-2002 for Greece. They found that the variables are co-integrated, they induce a mechanism of error correction model MEC. The error correction model arises from the long run relationship. They also used Granger causality tests and fount that there is a bidirectional causal relationship between exports and economic growth, that there is a unidirectional causal relationship foreign direct investment to economic growth and a unidirectional causal relationship from foreign direct investment to exports.

Balamurali and Bogahawatte (2004)[15] examine the relationship between foreign direct investment and economic growth of Sri Lanka over the period 1977-2003 using Johansen‟s full information maximum likelihood method. The study showed that there is one long run relationship between FDI, economic growth, domestic investment and openness. However, the study did not determine the causal relationship between both FDI and domestic investment or the relationship between FDI and openness.

Seabra and Flach (2005)[16] investigate the causal relationship between FDI and profit remittances of FDI outflows in Brazil using quarterly data from 1979.1-2003.4. They found a unidirectional causality from FDI to profit outlays. That the lagged effect of FDI inflows on profit outflows becomes positive for lag higher orders.

Yao (2006)[17] investigates the impact of exports and foreign direct investment (FDI) on economic performance in China. The study used data set from 28 Chinese provinces over the period 1978 -2000. The study used the methodology of dynamic panel data introduced by Arellano and Bond. The results show that both exports and FDI have strong and positive impact on economic growth in China.

Ayanwale (2007)[18] distinguishes between the impacts of different types of FDI on economic growth and does not consider the impact of the overall FDI as the previous studies. He found that although the impact of total FDI on economic growth may not be significant, FDI in communication sector has positive and significant impact on economic growth greater than that in the oil sector.

Magnus and Fosu (2008)[19] considered the impact of FDI on Ghana‟s economic growth in two different periods. He studied the causal link between FDI and GDP growth for the pr and post the Structural Adjustment Program 1983, SAP periods for Ghana. This aspect is very important because it takes into account that FDI insignificant impact in the pre SAP is due to lack of good investment environment. They found no evidence of causality between growth and FDI in any direction for the sub-period 1970-1983 and for the entire period 1970-2002. For the sub-period 1984-2002, they found evidence of FDI led growth but no evidence of growth led FDI.

Tang, A.Selvanathan and S.Selvananthan (2008)[20] investigate the causal relationships between foreign direct investment (FDI), domestic investment (DI) and economic growth in China using quarterly data over the period 1988.1-2003.4. They used a multivariate VAR system with error correction model (ECM) and they used the variance decomposition and impulse- response function analysis. They found that there is a bidirectional causality relationship between domestic investment and economic growth, there is only a unidirectional causality from FDI to domestic investment and from FDI to economic growth.

Elfakhani ans Matar (2007),[21] used data of 19 Middle East and North Africa

countries over the period of 1990-2000 to investigate the determinants of FDI inflows to these countries.Chan and Gemayel (2004)[22], show that the instability accompanied with investment risk is important in explaining the low levels of FDI inflows to the Middle East and North Africa countries. Iqbal and Nabli (2004),[23] emphasized the low levels of FDI inflows to the MENA countries excluding the Gulf countries which reached $2.2 billion in 2000 of almost 1 percent of FDI inflows to all developing countries for the same year.

3. Data and Methodology

The estimations use annual time series of gross domestic product GDP and FDI/GDP ratio in $US currency units over the period 1970-2007 for each of the North African countries. The data are collected from the UNCTAD on line database for 2008. We deflated the nominal values of GDP by the GDP deflator. The natural logarithms of real GDP are measured. The percentages of FDI to GDP (FDI/GDP *100) are used instead of the absolute values of FDI.

First, we test for the stationary of the time series. A non-stationary time series X_t is said to be integrated of order d if it becomes stationary after being differenced d times mathematically $X_t \sim I(d)$. X_t, is said to be integrated of order d. The order of integration is determined by the Augmented Dickey Fuller Unit root test (ADF). The augmented Dickey – Fuller (ADF) test uses an equation in which the change in the indicated variable is considered as the dependent variable and is regressed on its own lagged values in the level and on its own lagged differences as the independent variables.

$$\Delta Y_t = \alpha + \gamma Y_{t-1} + \varphi \Delta Y_{t-1} + \zeta_t$$

The null hypothesis and the alternative hypotheses of the test are

$$H_0 : \gamma = 0$$

$$H_1 : \gamma \prec 1$$

Second: The optimal lag length of the lagged differences of the indicated variables is determined by minimizing the Akaike Information Criteria (AIC). If the ADF test statistic of the level term is less than the critical value, then the null hypothesis of integration or of non-stationary of the time series is rejected. If the time series are not stationary but are integrated of the first order, they must be differenced until they are stationary. We determine whether to include an intercept and the linear trend variable by minimizing the Akaike information Criterion AIC.

Third: after we determine the optimal lag length of the system, the time series integrated of the same order are tested for the existence of long-term trend. The Johansen co-integration test states that if there are n endogenous variables, each of which has one unit root, there is from zero to n-1 linearly independent co- integration relations among them.

We consider a VAR of order ρ

$$Y_t = \Delta_1 Y_{t-1} + \ldots\ldots\ldots\ldots + \Delta \rho Y_{t-\rho} + \beta X_t + \xi_t$$

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{\rho-t} \Gamma_i \Delta Y_{t-i} + \beta X_t + \xi_t$$

$$\Pi = \sum_{i=1}^{\rho} A_i - I$$

$$\Gamma_i = -\sum_{j=i+1}^{\rho} A_j$$

Where Y_t k is a vector of non-stationary variables, X_t is d vector of deterministic variables and ξ_t is a vector of innovations.

Fourth: in the absence of co-integration, we may formulate the vector auto regression (VAR) models in terms of the first order as in equations 1 and 2 to assess whether or not shows statistical significant evidence of FDI led growth and/or growth led FDI. In the case of two variables, the model takes the form:

$$\Delta X_t = \lambda_1 + \sum_{i=1}^{K} A_{1,i} \Delta X_{t-1} + \sum_{j=1}^{K} B_{1,i} \Delta Y_{t-i} + U_{1,t}$$

$$\Delta Y_t = \lambda_2 + \sum_{i=1}^{K} A_{2,,i} \Delta X_{t-i} + \sum_{j=1}^{K} B_{2,,j} \Delta Y_{t-j} + U_{2,t}$$

Fifth, if the two series are integrated of the same order and are also co-integrated we use the error correction model ECM which is a restricted form of the VAR model that includes the co-integration relationships. The behavior of the co-integrated variables is restricted to converge to their long-run equilibrium. The ECM can indicate both the long run and the short run dynamics. The Johansen (1988)[24] co-integration restriction for two variables can be specified as followings:

$$\Delta X_t = \lambda_1 + \sum_{i=1}^{K} \alpha_{1,i} \Delta X_{t-1} + \sum_{j=1}^{K} \beta_{1,i} \Delta Y_{t-i} + \phi_1 EC_{1,t-1} + U_{1,t} \ where EC_{1,t-1} = (X - \gamma Y)_{t-1}$$

$$\Delta Y_t = \lambda_2 + \sum_{i=1}^{K} \alpha_{2,,i} \Delta X_{t-i} + \sum_{j=1}^{K} \beta_{2,j} \Delta Y_{t-j} + \phi_2 EC_{2,t-1} + U_{2,t} \ \overline{where EC}_{t-1} = (X - \delta Y)_{t-1}$$

$EC_{i,t-1} (i = 1,2.)$ is the error correction term lagged one period which is related to the long run equilibrium between the variables. This error correction term is calculated as the residuals of the co-integration equations.

All the series used in the ECM should be stationary and are I(0)

$\phi_1 =$ is the coefficient of adjustment and the coefficient of the error correction term $EC_{1,t-1}$ and it measures the long run elasticity of Y with respect to X. If the coefficient is significant, that means the existence of a long run relationship between the two variables. The coefficient of the EC term shows whether the past values of variables affect the current value of the variables under study. The size and the statistical significance of the coefficient of the error correction model measure the tendencies of each variable to return to equilibrium. Even if the coefficients of the lagged changes of the independent variables are not statistically significant, Granger causality can still exist as long as the coefficient of the error correction term is significantly different from zero. (Choudry 1999)[25].

α and β represent the direct response of X to changes in lagged value of Y and that of Y to changes in lagged value of X respectively. Therefore, they measure the short run elasticity. The Granger causality from variable X to variable Y and vice versa is measured in the presence of co-integration by testing null hypothesis that $\alpha_{ji} = 0 \ and \ \beta_{ji} = 0$ for all k in the equation and where i is the dependent variable.

4. Empirical Findings[26]

1. the results of the Augmented Dickey Fuller test. The results indicate the acceptance of the unit root hypothesis in the levels of real GDP and FDI for all countries. The unit root test is also applied on the first differences of the time series to

determine their order of integration. The results show that the first differences of the variables are stationary and that both real GDP and FDI/GDP are integrated of order 1.

2. There exists no long run or short run causality link between FDI and GDP growth rate in Algeria. FDI has no significant effect on Algeria"s economic growth and economic growth does not lead FDI inflows to Algeria.

3. The empirical results show the existence of a bidirectional long run relationship between GDP and FDI/GDP for Egypt. The larger the FDI inflows are, the greater the economic growth. On the other hand, the higher the economic growth is the bigger the FDI inflows to Egypt. As for the short run, economic growth leads FDI inflows to Egypt by one year and FDI inflows lead economic growth by one year and by two years. There is unidirectional Granger Causality running from FDI to economic growth.

4. There is a bidirectional casual long run relationship between GDP and FDI/GDP. The coefficient of dLGDP(-1) in the FDI/GDP equation in the EMC for Libya is positive and significant suggesting that GDP in Libya leads FDI inflows by one year. The coefficient of dGDP(-2) in the FDI/GDP equation is positive but insignificant suggesting that GDP does lead FDI inflows to Libya by two years. The coefficient of dLGDP_3) is also positive and significant suggesting that GDP growth rate leads FDI inflows by three years for Libya. The coefficient of FDI/GDP(-1), FDI/GDP(-2) and FDI/GDP(-3) in the GDP equation are negative and significant at the 5 percent confidence level suggesting that FDI inflows do lead the decline of economic growth in Libya by one year, two years and three years.

5. There is a bidirectional casual long run relationship between GDP and FDI/GDP. The coefficient of dLGDP(-1) in the FDI/GDP equation in the EMC for Morocco is positive and significant suggesting that GDP in Morocco leads FDI inflows by one year. The coefficient of dGDP(-2) in the FDI/GDP equation is positive but insignificant suggesting that GDP does lead FDI inflows to Morocco by two years. The coefficient of FDI/GDP(-1) and, FDI/GDP(-2) in the GDP equation are negative and significant at the 5 percent confidence level suggesting that FDI inflows do lead the decline of economic growth in Morocco by one year, two years and three years.

6. This result suggests the existence of a bidirectional long run relationship between GDP and FDI/GDP in Sudan. The coefficient of dLGDP(-1) in the FDI/GDP equation in the EMC for Sudan is positive and significant suggesting that GDP in Sudan leads the FDI inflows by one year. However, the coefficient of dGDP(-2) in the FDI/GDP equation is positive and insignificant suggesting that GDP does lead the FDI inflows to Sudan by two years. The coefficients of LGDP (-3) and LGDP (-4) are insignificant suggesting that economic growth does not lead FDI inflows by three and four years. The coefficient of FDI/GDP(-1), FDI/GDP(-2), FDI/GDP(-3) and FDI/GDP(-4) in the GDP equation are negative and insignificant at the 5 percent confidence level suggesting that FDI inflows does not lead the economic growth in Sudan in the short run.

7. This result suggests the existence of a bidirectional long run relationship between GDP and FDI/GDP.

The coefficient of dLGDP(-1) in the FDI/GDP equation in the EMC for Tunisia is positive and significant suggesting that GDP in Tunisia leads the increase of FDI inflows by one year. However, the coefficient of dLGDP(-2) and the coefficient of dLGDP(-4) in the FDI/GDP equation are positive but insignificant and that of dLGDP(-3) is negative and insignificant suggesting that GDP growth does not lead the FDI inflows to Tunisia by two years, three years or four years. The coefficient of FDI/GDP(-1), FDI/GDP(-2), FDI/GDP(-3) and FDI/GDP(-4) in the GDP equation are negative and insignificant at the 5 percent confidence level suggesting that FDI inflows do not lead the economic growth in Tunisia by one year, two years, three years and four years.

8. The direction of Granger causality is running from FDI to GDP for Egypt, Libya and Sudan since the estimated F value is significant at 5% level of significance. On the other hand, there is no reverse causation from GDP to FDI for these three countries since the computed F value is not statistically significant at the 5 percent level of confidence. Therefore, the Granger causality is a unidirectional running from FDI to GDP growth rate in Egypt, Libya and Sudan.

9. The results of the Granger Causality for the other three North African countries namely; Algeria, Morocco and Tunisia show the absence of causality relationship between FDI and GDP growth rate for these countries.

5. Conclusion

The empirical results must be put in the context of the development of FDI inflows to the countries FDI inflows to North African countries.FDI inflows to North African countries have reached a record during the period

1999-2000 after the slowdown during the late 1980s and the early 1990s. The main cause of this surge was the increase in cross-border M & AS activities. Besides, the North African countries have undertaken massive liberalizing measures since the 1990s to become eligible for attracting FDI inflows. The 2001 year saw the return of FDI inflows to its increase despite the global economic downturn and 11 September 2001 incident. FDI inflows to North African countries continued their upward trend during the millennium decade. The FDI inflows to North African countries during the period 2000-2008 were mainly caused by privatizations in the telecommunications sector and were concentrated in the petroleum industry and natural resources. Some FDI inflows to North African countries are attracted to intensive-environment industries such as the Cement and the steel industries. Most FDI inflows to North African countries are coming from the United States the United Kingdom, France and Germany. Recently, FDI inflows from other developing countries such China, India, Kuwait and Malaysia are growing in importance especially in telecommunications and petroleum industries.[27]

Endnotes and References

1. The impact of FDI on economic performance can include the interaction relationship between FDI and gross domestic fixed investment, exports and employment.

2. Lipsey, R E (2000) Interpreting Developed Countries" Foreign Direct Investment, Working Paper 7810, National Bureau of Economic Research, Cambridge, Massachusetts, July.

3. Dunning, J H (1970) Studies in International Investment, George Allen and Unwin Ltd

4. Solow, R. M., 1956, "A Contribution to the Theory of Economic Growth," Quarterly Journal of Economics, V.70, pp.65-94

5. 5 Vernon, R., 1966. "International Investment and International trade in the Product Cycle." Quarterly Journal of Economics 80, 190–207.

6. Romer, P.M., 1986, "Increasing Returns and Long Run Growth, " Journal of Political Economy, V.94, # 5, pp.1002-1037.

7. 7 Grossman, G. M., Helpman, E., 1991. "Innovation and Growth in the Global Economy." The MIT Press, Cambridge, MA.

8. de Mello, Luiz R., Jr., 1997. "Foreign Direct Investment in Developing Countries and Growth: a Selective Survey". The Journal of Development Studies, 34 (1), pp.1-34

9. de Mello, Luiz R., Jr., 1999. "Foreign Direct Investment-led Growth: Evidence From Time Series and Panel Data". Oxford Economic Papers, 51. pp. 133 – 151

10. Wang, Z., and Swain, N., the Determinants of Foreign Direct Investment in Transforming Economies: Empirical Evidence from Hungary and China, Weltwirtschaftliches Archive, Vol. 129, pp. 359-381

11. Liu, X., Burridge, P. and Sinclair, P.J.N., 2002. Relationships between economic growth, foreign direct investment and trade: Evidence from China, Applied Economics No. 34, pp. 1433-1440

12. Kumar, Nagesh and Jaya Prakash Pradhan. 2002. „Foreign Direct Investment, Externalities and Economic Growth in Developing Countries: Some Empirical Explorations and Implications for WTO Negotiations on Investment , RIS-DP #27/2002

13. Alici, Asli Akgiic and Meltem Sengun Ucal (2003), "Foreign Direct Investment, Exports and Output Growth of Turkey: Causality Analysis," Paper Presented at the European Trade Study Group (ETSG) Fifth Annual Conference. Universidad Carlos III de Madrid, Madrid.

14. Dritsaki M., Dritsaki, C. and Adamopoulos, A. 2004 " A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth for Greece:" American Journal of Applied Sciences 1 (3) 230-235,
15. N.Balamurali and C. Bogahawatte 2004 "Foreign Direct investment and Economic Growth in Sri Lankas" Sri Lankan Journal of Agricultural Economics Vol.6 # 1
16. Seabra, F and L. Flach (2005): "Foreign Direct investment and Profit Outflows: A Causality Analysis for the Brazilian Economy." Economics Bulletin, 6(1), pp.1-15
17. Yao, S. 2006"On Economic Growth, FDI and Exports in China" Applied Economics, 38 pp.339-351
18. Ayanwale A.B., 2007"FDI and Economic Growth: Evidence from Nigeria" AERC Research Paper 165 African Economic Research Consortium, Nairobi April
19. Magnus, F.J. and Fosu, Oteng E. 2008 " Bivariate Causality Analysis between FDI Inflows and Economic Growth in Ghana" International Research Journal of Finance and Economics ISSN 1450-2887 Issue 15
20. Sumei Tang,1 E. A. Selvanathan and S. Selvanathan 2008 " Foreign Direct Investment, Domestic Investment, and Economic Growth in China a time Series Analysis" UNU WIDER Research Paper No. 19
21. Chan, K.K., and Edward R. Gemayel (2004), Risk Instability and the Pattern of Foreign Direct Investment in the Middle East and North Africa Region. IMF Working Paper WP/04/139, pp1-20
22. Iqbal, F. and Nabli, M.K. 2004 "Trade, Foreign Direct Investment and Development in the Middle East and North Africa "Paper prepared for Conference entitled: The Middle East and North Africa Region: The challenges of Growth and Globalization, organized by the International Monetary Fund and held in Washington DC on April 7-8,
23. Johansen, S.   (1988) "Statistical Analysis of Cointegration Vectors," Journal of Economic Dynamics and Control, June/Sept., 231-254.
24. Choudry, T. (1999), „Long-run money Demand Function in Argentina during 1935-1962: Evidence from Cointegration and Error Correction Models; Applied Economics, Vol. 21, pp.66-67
25. Tables can be provided upon request.
26. UNCTAD 2006:World Investment Report 2006 www.UNCTAD.org